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International Business Machines Corporation
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EXAMINER

WOODS, ERIC V

ART UNIT	PAPER NUMBER
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2672

DATE MAILED: 11/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/728,165

Applicant(s)

TWAIT, JOSHUA GUNNAR

Examiner

Eric V. Woods

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– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☒ Notice of Draftperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The title must not exceed 8 words. The current title exceeds 20 words. A new title is **REQUIRED**.

Response to Arguments

Applicant's arguments with respect to claims 1-23 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Havre in view of Hao.

As to claim 1,

A computer implemented user interactive method for graphically displaying the proportion of a total value of a time dependent variable contributed by each of a set of elements comprising the steps of: (Preamble is not given patentable weight, since it only recites a summary of the claim and/or an intended use, and the process steps are capable of standing on their own; see *Rowe v. Dror*, 112 F.3d 473, 42 USPQ2d 1550 (Fed. Cir. 1997), *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305, 51 USPQ2d 1161, 1165 (Fed. Cir. 1999), and the like.)

-Displaying the proportion contributed by each element as an area within an ordered set of areas under a line representative of the total value of said time dependent variable; (Havre et al discloses that the claimed feature of a computer implemented user interactive method for graphically displaying the proportion of a total value of a time dependent variable contributed by each of a set of elements comprising the steps of: displaying the proportion contributed by each element as an area within an ordered set of areas [i.e. 'shade, dotted areas' in Fig 3; "areas"; 55,57 in Fig 4-6] under a line representative of the total value of time dependent variable ["reference label"; 47, i.e. time]; (See Fig 3, Fig 5, Fig 6) enabling [i.e. "user interface"; 16] the user to interactively select one of set of areas [55,57]; (See 6:21-24, 9:49-54, etc) and performing a selected operation selected from the group consisting of hiding the selected area [i.e. "the user reduce the number of themes"], displaying the selected area ["selectively display"] and [reordering the position of the selected area within ordered set responsive to user selection]. (See 6:21-24, 9:49-54))(Hao generates graphs involving time-dependent

data and other information, in [0027] and similar, specifically stacked-line or bar type of charts in Figure 3D)

-Enabling the user to interactively select one of said set of areas; and (Hao clearly teaches allowing the user to interact with such graphs, see [0014-0016], where the user can select the aggregate or elements thereof, as well as the boundary. Specifically, the user can select sub-areas on the graph as in [0035], where the user can select portions of the aggregate data, and the like)

-Performing a selected operation selected from the group consisting of hiding the selected area, displaying the selected area and reordering the position of the selected area within said ordered set responsive to said user selection. (Hao clearly teaches that the user can resize, hide, and otherwise alter selected portions of the aggregate as desired in [0035—0036, 0040]).

Havre teaches most of the limitations of the claim except the interactivity of the graph. First of all, applicant's arguments that Havre does not teach so-called stacked line or stacked-bar graphs are incorrect. Firstly, Havre teaches that such graphs are well known in the art, as they are implemented in Microsoft™ Excel (Note Havre background, 1:17-43), where the system of Havre improves on this. Next, this teaching further is defined in 1:30-35, where the stacked line graph is defined, which matches the definition in the claim for "displaying the proportion contributed by each element as an area within an ordered set of areas under a line representative of the total value of said time dependent variable." Further, Havre teaches in Figure 3 that the bar graph is in fact of the stacked-line type below the thematic illustration, since Havre also shows how

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in Figure 5 "a graphical representation of the thematic components of Fig. 4 stacked upon one another", e.g. the literal stacked line graph shown on a time axis, and also in Figure 7, where the flow chart clearly shows generating the bar or line graph in addition to the thematic representation, where in step S18 the bar graph is calculated and in step S22 it is illustrated. In 4:20-25, Havre clearly states that the **example** data set consists of the frequency of occurrence of particular words within a data set. It is entirely possible as noted in 4:20-25 that any type of data, including a full data set, could be shown, and this is clearly the thought process behind Havre's work, as would be clearly seen in 9:35-65, where the system creates an index of all the occurrences of all words within exemplary files, and **then allows the user to choose which elements to show in the thematic representation**, e.g. to choose the specific portions and subsets of the data, just as Microsoft™ Excel allows the user to do. Indeed, Havre specifically teaches the Microsoft™ Excel is prior art in the background, therefore it would be obvious to look to Excel for any required modification of Havre. Further, Figure 5 of Havre shows such a stacked line graph that is shown versus a time axis as set forth above (3:65-4:5), and further in Figure 4, various numbers of themes can be added (6:30-62). Specifically, Figure 5 shows the graph on a centerline (e.g. on a zero line base, as on a standard graph), is clearly time-based (from data set of Figure 3, which is clearly time-valued, 3:65-4:5) as well as showing the total number of occurrences of the selected objects and their relative proportion and actual number as a percentage of the area under the curve (6:50-7:20), which is further also the case with the stacked-bar type graph under Figure 3, as in 6:1-13, where of the items in bar graph / histogram, for example portions

45 and 43 show the relative proportions of the specific objects used at a certain point in time, as in the flowing thematic representation overhead, where the total height is representative of the total value.

Lastly, even if applicant wants to argue that the stacked-line graph format shown in Figure 5 is not precisely illustrative of the total value-proportional-stacked-line graph, Microsoft Excel and the stacked-line graph approach taught therein is cited as prior art, thusly making it obvious to modify Havre to utilize such techniques regardless of applicant's previous arguments to the contrary.

However, Havre does not teach an interactive graph as required by the latter half of the claim. Therefore, reference Hao is incorporated to cover this limitation. As noted above, Hao clearly teaches that the user can modify the aggregate, change the boundaries and the sizes of the area, the weights and other parameters, as well as hiding selected areas within the ordered set and reordering the position of data as required in the latter half of the claim.

Havre and Hao are analogous arts, since they are both directed to methods of visualizing underlying numerical data sets, and thusly also to the same problem-solving area. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Havre to have the additional flexibility and interactivity in Hao for at least the above reasons. Additionally, Hao provides methods for interacting with graphs, which obviously makes them easier to use and more user-friendly. Hao teaches that such interactivity can allow analysts to visualize data more

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quickly and understand that data faster, allowing improved service and many other capabilities to understanding underlying data sets [0042].

Regarding claim 2, Havre et al discloses that ordered set of areas under line comprising a stacked area graph formed by ordered set of areas under line. (See 1:24-30, Figs 5-6)

Regarding claim 3, refer to the discussion for the claim 1 hereinabove, Havre et al discloses that the selected operation performed is hiding the selected area; and further including the step, responsive to hiding step, of reforming at least one of the remaining displayed areas so as to represent the resulting change of reformed area within ordered set of stacked areas. (See Havre 6:21-24, 9:49-54, also Hao [0035-0036,0040])

Regarding claim 4, refer to the discussion for the claim 1 hereinabove, Havre et al discloses that the selected operation performed is displaying a selected undisplayed area; and further including the step, responsive to step of displaying, of reforming at least one of the other displayed areas so as to represent the resulting change of reformed area within ordered set of stacked areas. (See Havre 6:21-24, 9:49-54)

Regarding claim 5, refer to the discussion for the claim 1 hereinabove, Havre et al discloses that the selected operation performed is reordering the position of the selected area within ordered set; further including the step, responsive to step of reordering the position of the selected area within ordered set, of reforming at least one of the other displayed areas so as to represent the resulting change of reformed area

within reordered set of stacked areas. (See Havre 6:21-24, 9:49-54; Hao [0017,0027,0029,0034-0040])

Regarding claim 6, refer to the discussion for the claim 1 hereinabove, Havre et al discloses that displaying a plurality of icons [i.e. "thematic label"; 49] each representative of one of areas whereby the user may select one of areas by selecting the icon representative of the selected area. (See Havre Fig 3, 6:15-25, 9:48-55, and the like, and labels on the various elements, e.g. the word "Brazil" but this would be representative of any type or category of data shown therein). Further, it would be notoriously obvious that a legend could be placed on the graph, as this is done in Microsoft™ Excel, which is noted as background art, and which would be a notoriously and trivially obvious modification that would allow the user to tell at a glance what a particular category of data actually means, although examiner contends that both Havre and Hao teach this limitation. Examiner also takes Official Notice of this fact, and it is well known in the art. Further, Hao teaches that the graph is interactive and that the user can select a sub-area in [0037] and [0005, 0013, 0035].

Specifically, regarding claim 7, refer to the discussion for the claim 6 hereinabove which is incorporated by reference, Havre et al discloses that displaying a plurality of icons [i.e. "thematic label"; 49] each representative of one of areas whereby the user may reorder the position of the selected area by reordering the position of the selected icon representative of the selected area. (See Havre Fig 3). Clearly as noted above in the rejection to claim 6, which is incorporated by reference, this limitation would be

exceedingly obvious in light of Hao's teaching that the user may manipulate the various areas of the graph and select them.

Regarding claims 8-14, claims 8-14 are similar in scope to the claims 1-7, and thus the rejections to claims 1-7 hereinabove are also applicable to claims 8-14.

Regarding claims 15-20, claims 15-20 are similar in scope to the claims 1-6, and thus the rejections to claims 1-6 hereinabove are also applicable to claims 15-20.

Claims 7 and 14 are rejected under 35 USC 103(a) as unpatentable over Havre in view of Hao as applied to claims 1 and 8 above, and further in view of Chedgey (US 2004/0205726).

Specifically, regarding claim 7, refer to the discussion for the claim 6 hereinabove which is incorporated by reference, Havre et al discloses that displaying a plurality of icons [i.e. "thematic label"; 49] each representative of one of areas whereby the user may reorder the position of the selected area by reordering the position of the selected icon representative of the selected area. (See Havre Fig 3). Clearly as noted above in the rejection to claim 6, which is incorporated by reference, this limitation would be exceedingly obvious in light of Hao's teaching that the user may manipulate the various areas of the graph and select them.

Nonetheless, while the above references do teach implicitly (and/or at least fairly and obviously suggest such a limitation), reference Chedgey is brought in to cover the specific limitation of rearranging elements of the graph by selecting icons and/or labels. Chedgey teaches a system for graphing data to understand dependencies and better

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visualize data, so it is both an analogous art and directed to the same problem-solving area. Specifically, Chedgey teaches that in [0115-0119, particularly 0116] the user may rearrange nodes and/or sets of nodes, and that icons are used as representative data in [0133] as a label, and the like. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Havre and Hao to utilize this technique of Chedgey because (Abstract, [0016], [0059-0060], etc) it provides a more efficient means of expanding sub-nodes and understanding important interrelationships, such as weighting, which the Hao reference clearly allows the user to manipulate as above.

Claims 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Havre in view of Hao et al as applied to claims 1 and the like, and further in view of Yonts (6,590,577).

Regarding claim 21, the combination of Havre et al and Hao et al fail to disclose that selected operation is performed by morphing the displayed stacked area graph through an animated display sequence of stacked graphs. However, such limitation is shown in the teaching of Yonts in an analogous art. [i.e. "tweening and morphing"] (See Yonts 3:38-52) It would have been obvious to one skilled in the art to incorporate the teaching of Havre et al and Hao et al into the teaching of Yonts, in order to effectively provide display visualization with dynamic process, as such improvement is also advantageously desirable in the teaching Havre et al for providing data representation with improved and fancy image manipulation without complicated manner.

Regarding claims 22-23, claims 22-23 are similar in scope to the claim 21, and thus the rejection to claim 21 hereinabove is also applicable to claims 22-23:

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Havre et al (6,466,211) in view of Rao et al (6,085,202).

Regarding claim 1, Havre et al discloses that the claimed feature of a computer implemented user interactive method for graphically displaying the proportion of a total value of a time dependent variable contributed by each of a set of elements comprising the steps of: displaying the proportion contributed by each element as an area within an ordered set of areas [i.e. 'shade, dotted areas' in Fig 3; "areas"; 55,57 in Fig 4-6] under a line representative of the total value of time dependent variable ["reference label"; 47, i.e. time]; (See Fig 3, Fig 5, Fig 6) enabling [i.e. "user interface"; 16] the user to interactively select one of set of areas [55,57]; (See col. 6 line 21-24, col. 9 line 49-54) and performing a selected operation selected from the group consisting of hiding the selected area [i.e. "the user reduce the number of themes"], displaying the selected area ["selectively display"] and [reordering the position of the selected area within ordered set responsive to user selection]. (See col. 6 line 21-24, col. 9 lines 49-54)

Havre et al does not specifically disclose that reordering the position of the selected area, as recited in claim. However, such limitation is shown in the teaching of Rao et al. [i.e. 'user interface with hiding and reordering manipulation'] (See Abstract

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line 24-29, col. 6 line 15-20, col. 26 line 37+) It would have been obvious to one skilled in the art to incorporate the teaching of Rao et al into the teaching of Havre et al, in order to "rearrange the graphical images to reveal additional patterns and trends in the underlying information data" (See col. 6 line 15-20 in Rao), as such improvement is also advantageously desirable in the teaching of Havre et al for providing/manipulating the data visualization with an interactive methodology for effective data analyze. (See col. 9 lines 49-50 in Havre et al)

Regarding claim 2, Havre et al discloses that ordered set of areas under line comprising a stacked area graph formed by ordered set of areas under line. (See col. 1 line 24-30, Fig 5-6)

Regarding claim 3, refer to the discussion for the claim 1 hereinabove, Havre et al discloses that the selected operation performed is hiding the selected area; and further including the step, responsive to hiding step, of reforming at least one of the remaining displayed areas so as to represent the resulting change of reformed area within ordered set of stacked areas. (See col. 6 line 21-24, col. 9 line 49-54; Also See Abstract line 24-29, col. 6 line 15-20, col. 26 line 37+ in Rao et al)

Regarding claim 4, refer to the discussion for the claim 1 hereinabove, Havre et al discloses that the selected operation performed is displaying a selected undisplayed area; and further including the step, responsive to step of displaying, of reforming at least one of the other displayed areas so as to represent the resulting change of reformed area within ordered set of stacked areas. (See col. 6 line 21-24, col. 9 line 49-54; Also See Abstract line 24-29, col. 6 line 15-20, col. 26 line 37+ in Rao et al)

Regarding claim 5, refer to the discussion for the claim 1 hereinabove, Havre et al discloses that the selected operation performed is reordering the position of the selected area within ordered set; further including the step, responsive to step of reordering the position of the selected area within ordered set, of reforming at least one of the other displayed areas so as to represent the resulting change of reformed area within reordered set of stacked areas. (See col. 6 line 21-24, col. 9 line 49-54; Also See Abstract line 24-29, col. 6 line 15-20, col. 26 line 37+ in Rao et al)

Regarding claim 6, refer to the discussion for the claim 1 hereinabove, Havre et al discloses that displaying a plurality of icons [i.e. "thematic label"; 49] each representative of one of areas whereby the user may select one of areas by selecting the icon representative of the selected area. (See Fig 3, Also See Abstract line 24-29, col. 6 lines 15-20, col. 26 line 37+ in Rao et al)

Regarding claim 7, refer to the discussion for the claim 1 hereinabove, Havre et al discloses that displaying a plurality of icons [i.e. "thematic label"; 49] each representative of one of areas whereby the user may reorder the position of the selected area by reordering the position of the selected icon representative of the selected area. (See Fig 3, Also See Abstract line 24-29, col. 6 lines 15-20, col. 26 line 37+ in Rao et al)

Regarding claims 8-14 claims 8-14 are similar in scope to the claims 1-7, and thus the rejections to claims 1-7 hereinabove are also applicable to claims 18-14.

Regarding claims 15-20, claims 15-20 are similar in scope to the claims 1-6, and thus the rejections to claims 1-6 hereinabove are also applicable to claims 15-20.

Claims 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Havre et al (6,466,211) in view of Rao et al (6,085,202), and further in view of Yonts (6,590,577).

Regarding claim 21, the combination of Havre et al and Rao et al fail to disclose that selected operation is performed by morphing the displayed stacked area graph through an animated display sequence of stacked graphs. However, such limitation is shown in the teaching of Yonts in an analogous art. [i.e. "tweening and morphing"] (See col. 3 lines 38-52) It would have been obvious to one skilled in the art to incorporate the teaching of Havre et al and Rao et al into the teaching of Yonts, in order to effectively provide display visualization with dynamic process, as such improvement is also advantageously desirable in the teaching Havre et al for providing data representation with improved and fancy image manipulation without complicated manner.

Regarding claims 22-23, claims 22-23 are similar in scope to the claim 21, and thus the rejection to claim 21 hereinabove is also applicable to claims 22-23.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric V. Woods whose telephone number is 571-272-7775. The examiner can normally be reached on M-F 7:30-4:30 alternate Fridays off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Razavi can be reached on 571-272-7664. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Eric Woods

November 25, 2005



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